

REMARKS

Summary of Office Action

Claims 1-21 are pending in this application.

Claims 1, 7 and 11 were objected to because of informalities.

Claims 5, 10 and 16 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Claims 1-10, 12 and 14-16 were rejected under 35 U.S.C. § 102(e) as being anticipated by Jenkins et al. U.S. Patent No. 7,031,420 ("Jenkins").

Claims 17-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jenkins in view of Aung et al. U.S. Patent Publication No. 2001/0033188 ("Aung").

Claim 21 was allowed. Each of claims 11 and 13 was objected to as being dependent upon a rejected base claim, but allowable subject matter was indicated.

Summary of Applicants' Reply

Applicants note with appreciation the allowance of claim 21 and the indication of allowable subject matter in claims 11 and 13.

Applicants have amended claims 1, 5, 7 and 10 in order to more particularly point out and distinctly claim the subject matter which applicants regard as the invention. Applicants have amended claims 11 and 13 to be in independent form. No new matter has been added and the amendments are fully supported by the original specification. The Examiner's rejections are respectfully traversed.

Applicants' Reply to the Claim Objections

Claims 1, 7 and 11 were objected to for informalities. The Examiner stated that there is insufficient antecedent basis for the reference to "the versions" in each of the objected claims. Applicants have amended claims 1, 7 and 11 to provide proper antecedent basis. Accordingly, applicants request that the objections of claims 1, 7 and 11 be withdrawn.

**Applicants' Reply to the Rejection of
Claims 5, 10 and 16 Under 35 U.S.C. § 112**

The Examiner rejected claims 5, 10 and 16 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Applicants' claimed invention, as recited in amended claims 5 and 10, includes the feature that the plurality of phase-shifted versions of the reference clock signal includes n versions. Applicants respectfully submit that claims 5 and 10 particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Applicants' claimed invention, as recited in claim 16, specifies a programmable logic device including apparatus as defined in claim 7. The Examiner states that "there is insufficient antecedent basis for this limitation in the claim because there is no recitation of any PLD in claim 7." Office Action, page 2. Applicants respectfully traverse the rejection of claim 16 and point out that claim 16 recites a programmable logic device. Therefore, antecedent basis in claim 7 is unnecessary.

For at least the above reasons, applicants respectfully request that the rejection of claims 5, 10 and 16 under 35 U.S.C. § 112 be withdrawn.

**Applicants' Reply to the Rejection of
Claims 1-10, 12 and 14-16
Under 35 U.S.C. § 102(e) Over Jenkins**

The Examiner rejected claims 1-10, 12 and 14-16 as being anticipated by Jenkins. Applicants respectfully traverse the Examiner's rejection.

Claim 1

Applicants' claimed invention, as recited in independent claim 1, is directed to a method of detecting phase of transitions in a data signal relative to a reference clock signal comprising producing a plurality of phase-shifted versions of the reference clock signal and using each of the plurality of phase-shifted versions of the reference clock signal in order of magnitude of phase shift to sample the data signal.

Jenkins discusses identifying skew in parallel data signals by sampling consecutive data points using a clock with a frequency that is twice the frequency of the data signal. (Jenkins, col. 7, lines 23-25).

The Examiner states that Jenkins discloses "producing a plurality of phase-shifted versions of the reference clock signal . . . [and] using each of the plurality of phase-shifted (skewed) versions in order of magnitude of

phase shift (skew) to sample the data signal." Office Action, page 3.

Jenkins, however, does not show or suggest the feature of applicants' claim 1 of producing a plurality of phase-shifted versions of the reference clock signal. Because Jenkins does not show producing the plurality of phase-shifted versions of the reference clock signal, the reference obviously cannot disclose using each of the plurality of phase-shifted versions of the reference clock signal in order of magnitude of phase shift to sample the data signal.

The Examiner takes the position that "producing one or a plurality of phase shifted signals is well known in the art." Office Action, page 3. Applicants respectfully traverse the Examiner's rejection.

First, there is no suggestion in the reference that a plurality of phase shifted versions of the reference clock signal should be used to detect the phase of transitions in a data signal relative to a reference clock signal, nor has the Examiner provided any other reference that makes such a suggestion.* Moreover, the Examiner fails to address how

* The Examiner has effectively taken "official notice." Applicants take no position at this time as to whether, in
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Jenkins can show claim 1's feature of using each of the plurality of phase-shifted versions of the reference clock signal in order of magnitude of phase shift to sample the data signal, when the reference does not disclose a plurality of phase-shifted versions of the reference clock signal.

For at least the foregoing reasons, applicants respectfully submit that amended independent claim 1 is patentable. Furthermore, any claims that depend from claim 1 are also patentable for at least the same reasons as set forth above. Accordingly, applicants respectfully request that the rejections of claims 1-6 be withdrawn.

Claim 7

Applicants' claimed invention, as recited in independent claim 7, is directed to an apparatus for detecting phase of transitions in a data signal relative to a reference clock signal comprising a plurality of delay circuit elements for producing a plurality of phase-shifted versions of the reference clock signal.

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doing so, the Examiner has met the requirements of MPEP
§ 2144.03.

Jenkins discusses deskew circuitry which adds delay to channel data using fine tune delay line 200 and coarse tune delay line 210. (See Jenkins, col. 6, lines 30-40).

The Examiner equates fine tune delay line 200 and coarse tune delay line 210 with applicants' claimed plurality of delay circuit elements for producing a plurality of phase-shifted versions of the reference clock signal (Office Action, Page 5). Applicants respectfully traverse the Examiner's rejection.

Applicants respectfully submit that Jenkins' fine tune delay line 200 and coarse tune delay line 210 are not coupled to either channel clock 115 or core clock 150, and therefore, cannot be used to produce a plurality of phase-shifted versions of a reference clock signal.

Moreover, the only element in Jenkins that is capable of delaying a clock signal is fine tune delay line 160, but fine tune delay line 160 is not a plurality of delay circuit elements for producing a plurality of phase-shifted versions of the reference clock signal as recited in applicants' amended claim 7.

For at least the foregoing reasons, applicants respectfully submit that amended independent claim 7 is patentable. Furthermore, any claims that depend from claim 7

are also patentable for at least the same reasons as set forth above. Accordingly, applicants respectfully request that the rejections of claims 8-10, 12 and 14-16 be withdrawn.

**Applicants' Reply to the Rejection of
Claims 17-20 Under 35 U.S.C. § 103(a)
Over Jenkins In View of Aung**

The Examiner rejected claims 17-20 under 35 U.S.C. § 103(a) as being unpatentable over Jenkins in view of Aung. Because claims 17-20 depend from allowable independent claim 7, claims 17-20 are allowable.

Therefore, applicants respectfully request that the rejection of claims 17-20 be withdrawn.



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CONCLUSION

The foregoing demonstrates that claims 1-20 are allowable. Claim 21 was already allowed by the Examiner. This application is therefore in condition for allowance. Reconsideration and allowance are accordingly respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, reading "Robert R. Jackson". The signature is written in a cursive style with a long horizontal flourish extending to the right.

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